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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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BODDIE, WILLIAM

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,272	<b>Applicant(s)</b> CHEON ET AL.	
	<b>Examiner</b> William Boddie	<b>Art Unit</b> 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

1. In an amendment dated, 9/18/06, the Applicant amended claims 1, 9, and 13, and traversed the rejections of claims 1-16. Currently claims 1-16 are pending.

#### ***Response to Arguments***

2. On pages 6-7 of the remarks, the Applicant traverses the rejection of claim 1.

Applicant's traversal of the rejection to claims 1-8, on the grounds of lacking an outwardly protruding light guide, have been considered but are moot in view of the new ground(s) of rejection.

3. On pages 10-11, the Applicant traverses the rejection of claims 9-16. Specifically the Applicant argues that element 49 of Perret cannot be considered an upper transparent plate attached to a top of the optical wave guide. The Applicant goes on to argue that Perret's light concentrating plate can not be seen as reflecting incident light into the light concentrating pad.

On both arguments the Examiner respectfully disagrees. First, it seems clear to the Examiner that the upper cross-hatching present in figure 1 of Perret clearly disclose a different plate separate from the light guide. Additionally the Applicant is pointed to column 5, lines 41-42 that states, "as shown in FIG. 1, the diffuser 56 is placed on top of the light guide." Further note that both elements 49 and 56 point to the same cross-hatched region in figure 1.

Therefore the Examiner maintains the position that Perret does indeed disclose an upper transparent plate that is attached to a top of the optical wave guide for passing the light reflected from the lower reflecting plate.

As to the Applicant's argument that Perret also does not disclose a light concentrating plate, the Examiner again disagrees. The Applicant argues that the light concentrating plate of Perret is located where light is not incident to compensate for light leakage. While the light concentrating plate is not located on the same side as a light source, this certainly does not mean that no light is incident. Much to the contrary, it is the fact that light is "incident," or striking on the plate, that the light concentrating plate is effective as a virtual bulb.

Thus it is the Examiner's contention that light, from the light source, travels through the light guide and is then *incident* on the light concentrating plate. The incident light is then reflected back into the light concentrating pad. This is clearly supported by figure 1 of Perret.

Therefore the Examiner maintains the position that the combination of Lyon in view of Perret sufficiently obviate claims 9-16.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunka (US 4,114,034) in view of Atsumi et al. (US 5,589,678).

**With respect to claim 1**, Hunka discloses, an optical cursor control device (fig. 1) having worktable (30 in fig. 3) and an optical mouse moved on the worktable by an operator, the optical mouse comprising:

a case (110, 10, 11 in fig. 1);

a light guide (12, 14 in fig. 1) disposed at a sidewall of the case (in this instance the sidewall can be seen as 11 and 110 in fig. 1, as shown in fig. 1 the mirror is located at the sidewall) to introduce external lights (15 in fig. 1 and 31 in fig. 3) into the case, a portion of the light guide being exposed to an outside of the case;

an optical sensor (16 in fig. 1) disposed in the case to detect output lights of the light guide; and

a printed circuit board (21 in fig. 2) with electronic parts processing an output signal of the optical sensor to generate an output signal that corresponds to a position of the case (corrected x, y coordinates).

Hunka does not expressly disclose, that the light guide outwardly protrudes from the case.

Atsumi discloses, a light guide (7, 7a in fig. 1-2) that outwardly protrudes from a optical detection device (clear from figs. 1-2).

Atsumi and Hunka are analogous art because they are both from the same field of endeavor namely, handheld optical scanning devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the outwardly protruding light guide portion of Atsumi in the device of Hunka.

The motivation for doing so would have been to allow the user to align the device to specific points that would otherwise be obscured by the device (Atsumi; col. 1, lines 15-19).

Therefore it would have been obvious to combine Atsumi with Hunka for the benefit of more accurate user operation of the device to obtain the invention as specified in claim 1.

6. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunka (US 4,114,034) in view of Atsumi et al. (US 5,589,678) and further in view of Son (US 6,741,234).

**With respect to claim 2**, Hunka and Atsumi disclose, the optical cursor control device according to claim 1 (see above).

Neither Hunka nor Atsumi expressly disclose, wherein the light guide is a prism.

Son discloses, an optical mouse wherein a light guide is a prism (prism in fig. 9).

Son, Atsumi and Hunka are analogous art because they are both from the same field of endeavor namely, optical cursor control members.

At the time of the invention it would have been obvious to replace the beam splitter (12 in fig. 1) of Hunka and Atsumi with the total reflection prism taught by Son.

The motivation for doing so would have been a more precisely reflected and concentrated beam.

Therefore it would have been obvious to combine Hunka and Atsumi with Son for the benefit of a more precise cursor control device as specified in claim 2.

**With respect to claim 3,** Hunka, Atsumi and Son disclose, the optical cursor control device according to claim 2 (see above).

Son further discloses, wherein the prism has a first area that accepts lights reflecting from a surface of the worktable adjacent to the case (see incoming rays into the prism through convex bulge in fig. 9) and a second area that introduces lights passing through the first area into the optical sensor (exiting lights out of light receiving lens in fig. 9; also note col. 4, lines 5-7 which discloses forming all the lenses together).

**With respect to claim 4,** Hunka, Atsumi and Son disclose, the optical cursor control device according to claim 3 (see above).

Son further discloses, wherein the prism further comprises light concentrators disposed at the first and second areas, and the light concentrators increase light intensities passing through the light concentrators (note the two lenses included in the prism, light receiving lens and the convex lens initially integral to the prism in fig. 9; also see col. 4, lines 5-7 which discloses, all the lenses and prisms being integral to one another).

**With respect to claim 5,** Hunka, Atsumi and Son disclose, the optical cursor control device according to claim 4 (see above).

Son further discloses, wherein the light concentrators are convex lenses (clear from fig. 9).

**With respect to claim 6,** Hunka and Atsumi disclose, the optical cursor control device according to claim 1 (see above).

Neither Hunka nor Atsumi expressly disclose, a button and switch module in the cursor control device.

Son discloses, a switch module (22 in fig. 7) mounted on the printed circuit board (23 in fig. 7); and

a button (21 in fig. 7) disposed on a top of the case to turn on or off the switch module.

At the time of the invention it would have been obvious to include a button and switch module, as taught by Son, in the cursor control device of Hunka and Atsumi.

The motivation for doing so would have been for the convenience of the user also to provide the user more functionality in the cursor control device.

Therefore it would have been obvious to combine Son with Hunka and Atsumi for the benefit of additional functionality to obtain the invention as specified in claim 6.

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunka (US 4,114,034) in view of Atsumi et al. (US 5,589,678) and further in view of Seo (US 5,992,749).

**With respect to claim 7**, Hunka and Atsumi disclose, the optical cursor control device according to claim 1 (see above).

Hunka further discloses, including a viewing opening in the housing (col. 2, lines 37-42).

Neither Hunka nor Atsumi expressly disclose, irradiating external light onto the worktable.



Seo discloses, wherein the light guide has a light concentrating surface (20 in fig. 1) that accepts external lights of the case and an illuminating surface (40 in fig. 1) irradiating lights penetrating the light concentrating surface onto the surface of the worktable through an opening (30 in fig. 1) formed in a lower panel of the case, the illuminating surface having an area smaller than that of the light concentrating surface and the optical sensor detecting lights reflected from the surface of the worktable (col. 3, line 66 – col. 4, line 10).

Seo, Atsumi and Hunka are analogous art because they are from the same field of endeavor namely, optical readers.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the half-silvered mirror of Seo in the cursor control device of Hunka and Atsumi.

The motivation for doing so would have been to allow the user to visually confirm the area being moved over with the device (Seo, col. 4, lines 16-17). Allowing easier use of the device.

Therefore it would have been obvious to combine Seo with Hunka and Atsumi for the benefit of ease of use, to obtain the invention as specified in claim 7.

**With respect to claim 8**, Seo, Atsumi and Hunka disclose, the optical cursor control device according to claim 7 (see above).

Hunka further discloses, a light emitting device installed in the case, wherein the light emitting device is automatically turned on and lights from the light emitting device are irradiated onto the surface of the worktable through the opening (col. 1, lines 35-37).

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8. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon (US 4,521,772) in view of Perret, Jr. et al. (US 5,736,686).

**With respect to claim 9**, Lyon discloses, an optical cursor control device having a light concentrating pad (21 and 22 in fig. 2) and an optical mouse (fig. 22) moved on the light concentrating pad by an operator.

Lyon does not explicitly disclose the components of the light concentrating pad.

Perret, Jr. discloses, a light concentrating pad comprising:

a light concentrating plate (52 in fig. 1; col. 5, lines 12-14 discloses that the edge is coated with aluminized mylar thus creating a light concentrating plate (note the rays around 48 in fig. 1)) reflecting incident light into the light concentrating pad (note the above discussion of the Applicant's arguments; in short, "incident light" [light that strikes the light concentrating plate] is clearly reflected into the light concentrating pad);

an optical wave guide for passing light reflected from the light concentrating plate (14 in fig. 1);

a lower reflecting plate (15 in fig. 1; col. 3, line 63) attached to a bottom of the optical wave guide; and

an upper transparent plate (49, 56 in fig. 1) attached to a top of the optical wave guide for passing the light reflected from the lower reflecting plate.

Perret, Jr. and Lyon are analogous art because they are from the same field of endeavor namely, backlit cursor control devices.

At the time of the invention it would have been obvious to replace the backlit worktable of Lyon with the light panel of Perret, Jr.

The motivation for doing so would have been, a more uniform illumination across the panel (Perret, Jr.; col. 1, lines 7-11).

Therefore it would have been obvious to combine Lyon with Perret, Jr. for the benefit of uniform illumination to obtain the invention as specified in claim 9.

**With respect to claim 10**, Lyon and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Perret, Jr. further discloses, wherein the upper transparent plate includes regular patterns drawn on a surface thereof (col. 4, lines 42-46).

**With respect to claim 11**, Lyon and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Lyon further discloses, an optical mouse comprising;  
a case (108 in fig. 22) including a lower panel, the lower panel having an opening (clear from fig. 22);  
an optical sensor (120 in fig. 22) mounted inside the case for sensing reflected light introduced into the case through the opening (fig. 22); and  
a printed circuit board (110 and 112 in fig. 22) for processing a signal outputted from the optical sensor to generate an output signal that corresponds to a position of the case.

**With respect to claim 12**, Lyon and Perret, Jr. disclose, the optical cursor control device according to claim 11 (see above).

Lyon further discloses, wherein the optical mouse further comprises:  
a switch module disposed on the printed circuit board (114, 115 in fig. 22); and

a button disposed at the top surface of the case to turn on or off the switch module (116 in fig. 22).

**With respect to claims 13-16**, the only differing limitation in claim 13 and its dependents from claims 9-12, is the inclusion of a light source instead of a light concentrating plate in the independent claim. Perret, Jr. clearly discloses a light source (16 in fig. 1) in the light pad.

Therefore claim 13 and its dependents are rejected on the same merits as shown above in claims 9-12.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bohn (US 6,618,038) discloses a pointing device with a protruding light guide.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb  
11/11/06

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER  
